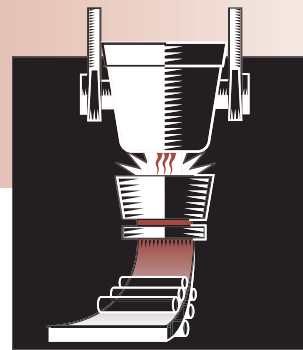


STEEL

Project Fact Sheet

LIGHTWEIGHT STEEL CONTAINERS



CONSTRUCTING STEEL CONTAINERS USING INTERNAL PRESSURE FOR CAN STABILITY SUBSTANTIALLY REDUCES ENERGY AND STEEL CONSUMPTION

Benefits

- Reduces greenhouse gas emissions during manufacturing by reducing steel consumption by as much as an estimated 50%
- Significant energy savings for a plant producing 200 million containers each year, savings in more than 500 billion Btu's for large containers and 200 billion Btu's for small containers
- Reduces transportation costs and pollution by transferring less steel from the mill to production and in shipping finished goods
- Increases and simplifies recycling due to the ease of hand crushing because the cans have the consistency of a soft drink can when empty
- No side weld or bottom seam resulting in increased corrosion resistance
- Relatively low unit costs due to reduced metal consumption

Applications

This lightweight container can be used for aerosol type sprays, as well as semi-solid products such as shaving cream and other gels. The global aerosol market is estimated to have annual sales of \$2 billion.

Project Partners

NICE³ Program
Washington, DC

Pennsylvania Department of
Environmental Protection
Harrisburg, PA

Dispensing Containers Corp.
Allentown, PA



LIGHTWEIGHT AEROSOL CANS



Constructing steel containers using a can's internal pressure to make the can walls rigid will save energy and reduce steel consumption and greenhouse gas emissions during manufacturing.

Use of this technology leaves the bottom of the can thick enough to comply with Department of Transportation requirements for shipping. Based on prototype testing, this technology will result in a 40% average reduction in the metal content of the container body, with equivalent or better strength. DCC has also developed a lightweight dome which, when used in conjunction with the DCC body, brings the total metal reduction per container even higher, to as much as 50% for some sizes. This reduction in raw material will lead to corresponding reductions in costs and waste emissions created during manufacturing.

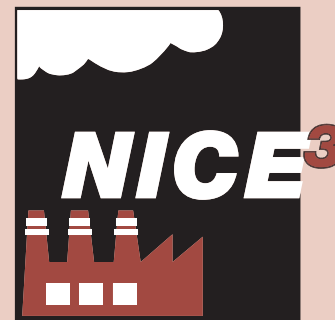
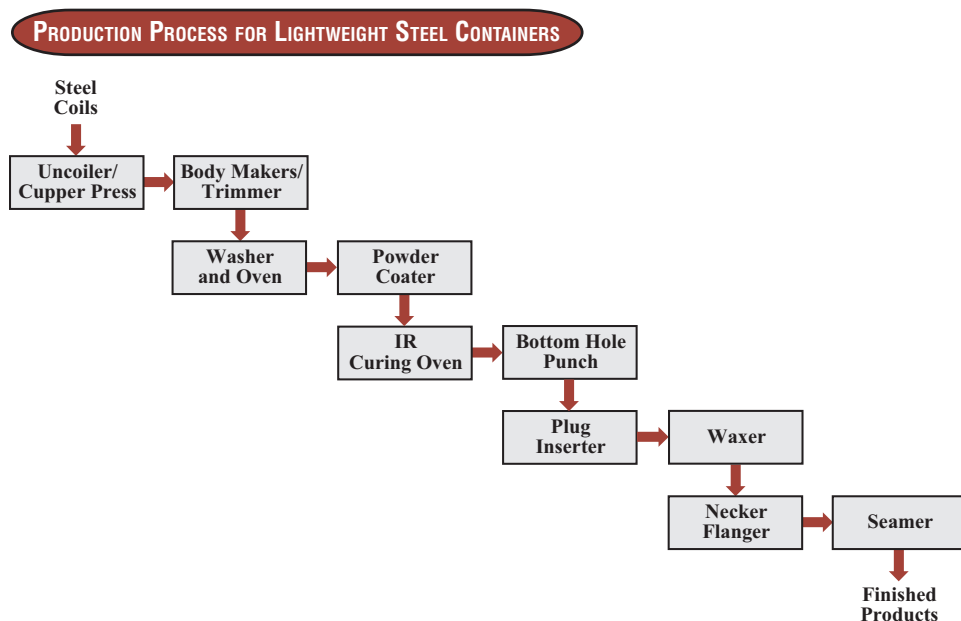
Project Description

Goal: Demonstrate a full-scale system for manufacturing steel dispensing containers with an average of 40% less raw material than conventional manufacturing processes.

In the conventional production of a pressurized dispensing can, the top and bottom are characteristically weak compared to the relatively strong cylindrical body. DCC, supported by a grant from the U.S. Department of Energy's NICE³ Program, has demonstrated the production of a thin-walled container with a bottom thickness and design requiring a minimum amount of metal. The production starts with coils of rolled flat sheet steel from which circular discs are formed into "cups". The walls of the "cups" are "ironed" longer and thinner and a domed cap added to produce a can with the same strength as conventional products but using less material.

Progress and Milestones

- Testing and development of the prototype system has been completed.
- High-volume production of cans is under way.
- DCC is currently producing and marketing two different container sizes.



NICE³ – National Industrial Competitiveness through Energy, Environment, and Economics: An innovative, cost-sharing program to promote energy efficiency, clean production, and economic competitiveness in industry. This grant program provides funding to state and industry partnerships for projects that demonstrate advances in energy efficiency and clean production technologies. Awardees receive a one-time grant of up to \$525,000. Grants fund up to 50% of total project cost for up to 3 years.

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Order # NICE³ ST-2
 February 2002